The following is a complete listing of all claims in the application, with an indication of the status of each:

Listing of claims:

1 (Currently amended). A computer-implemented auction method for holding an auction for a product comprising the steps of:

receiving bids from at least one computer or from multiple computers within a network of computers that include minimum desired volumes and maximum desired volumes and evaluation prices for said product wherein said evaluation prices are represented as a non-linear function relative to the desired volume of said product in said transaction;

generating, using computing resources, a finite set of bids that include as an element said bids that were received from said at least one computer or from multiple computers within said network of computers;

employing dynamic programming using said computing resources to generate, using said bids that were received in said receiving bids step, a subset of bids wherein a maximum gain is obtained within a range represented by a count of said product available for sale, wherein said dynamic programming includes

(i) allocating a two-dimensional array V, representing a maximum gain, to a memory area by using said dynamic programming using said computing resources;

(ii) initializing said two-dimensional array V; and

(iii) recursively solving the recursive equation for said two-dimensional array V, wherein

$$V(k, j) := \max\{V(k+1, j), V(k, j+1), \max_{1k\le n\le hk}\{V(k+1, j+x)+e_k(x)\}\}$$

is used as the recursive equation, where V(k, j) denotes said two-dimensional array V populated with said evaluation prices; where k represents the bid number and denotes an integer equal to or greater than 1 and equal to or smaller than n; j represents the

number of the product and denotes an integer equal to or greater than 0 and equal to or smaller than s; n denotes the number of bids; s denotes the number of products available for the transaction; e_k denotes the evaluation price when x units of products are purchased according to the bid b_k; l_k denotes the minimum volume of the bid b_k; and h_k denotes the maximum volume of the bid b_k; and

identifying or accepting a bid from said subset of bids, wherein a bid is selected by back tracking of said two-dimensional array V from the element on the smallest row and in the smallest column.

2-4. Canceled

5 (Currently amended). ~~The auction method according to claim 1, further comprising:~~ A computer implemented auction method for holding an auction for a product comprising the steps of:

receiving bids from at least one computer or from multiple computers within a network of computers that include minimum desired volumes and maximum desired volumes and evaluation prices for said product wherein said evaluation prices are represented as a non-linear function relative to the desired volume of said product in said transaction;

generating, using computing resources, a finite set of bids that include as an element said bids that were received from said at least one computer or from multiple computers within said network of computers;

employing dynamic programming using said computing resources to generate, using said bids that were received in said receiving bids step, a subset of bids wherein a maximum gain is obtained within a range represented by a count of said product available for sale, wherein said dynamic programming includes

(i) allocating two-dimensional arrays V, representing a maximum gain, and Q, representing a count of a product available, to a memory area by using said dynamic programming;

(ii) initializing said two-dimensional arrays V and Q; and

(iii) recursively solving recursive equations for said two-dimensional arrays V and Q using said computing resources,

wherein

$$V(k,j):=\left\{\begin{array}{c} V(k+1,j) \\ V(k,j+1) \\ V(k,j+1)+e_k \\ V(k+1,j+1_k)+e_k 1_k \end{array} \quad if\, 1k \le Q(k,j+1) < h_k \right\}$$

$$Q(k,j):=\left\{\begin{array}{cc} Q(k,j+1)+1 & (if\ V(k,j)=V(k,j+1)+e_k \\ 1_k & (if\ (k,j)=V(k+1,j+1_k)+e_k 1_k \\ Q(k,j+1) & (if\ V(k,j)=Vk,j+1) \\ 0 & (otherwise) \end{array}\right\}$$

is employed as said recursive equation, where V(k, j) denotes said two-dimensional array V populated with said evaluation prices; where Q (k , j) denotes said two-dimensional array Q populated with said count of said product available for sale; where k represents a bid number and denotes an integer equal to or greater than 1 and equal to or smaller than n; j represents the number of the product and denotes an integer equal to or greater than 0 and equal to or smaller than s; n denotes the number of bids; s denotes the number of products available for the transaction; e_k denotes the evaluation price when x units of products are purchased according to the bid b_k; l_k denotes the minimum volume of the bid b_k; and h_k denotes the maximum volume of the bid b_k, wherein a bid is selected by back tracking of said two-dimensional array V from the element on the smallest row and in the smallest column.

6-12. Canceled

13 (Currently amended). An auction system of computing resources for holding an auction for a product comprising:

means for receiving bids from at least one computer or from multiple computers within a network of computers that include minimum desired volumes and maximum desired volumes and evaluation prices for said product;

means for generating, using computing resources, a finite set of bids that include as an element said bids that were received from said at least one computer or from multiple computers within said network of computers;

means for employing dynamic programming using said computing resources to generate, using said bids that were received from said at least one computer or from multiple computers within said network of computers, a subset of bids wherein a maximum gain is obtained within a range represented by a count of said product available for sale, wherein said means for employing dynamic programming

(i) allocates a two-dimensional array V, representing a maximum gain, to a memory area by using said dynamic programming using said computing resources;

(ii) initializes said two-dimensional array V; and

(iii) recursively solves the recursive equation for said two-dimensional array V, wherein

$$V(k, j) := \max\{V(k+1, j), V(k, j+1), \max_{1k \le n \le hk}\{V(k+1, j+x)+e_k(x)\}\}$$

is used as the recursive equation, where V(k, j) denotes said two-dimensional array V populated with said evaluation prices; where k represents the bid number and denotes an integer equal to or greater than 1 and equal to or smaller than n; j represents the number of the product and denotes an integer equal to or greater than 0 and equal to or smaller than s; n denotes the number of bids; s denotes the number of products available for the transaction; e_k denotes the evaluation price when x units of products are purchased according to the bid b_k; l_k denotes the minimum volume of the bid b_k; and h_k denotes the maximum volume of the bid b_k; and

means for identifying or accepting a bid from said subset of bids, wherein a bid is selected by back tracking of said two-dimensional array V from the element on the smallest row and in the smallest column.

14-16. Canceled

17 (Currently amended). ~~The auction system according to claim 13, further comprising:~~

An auction system of computing resources for holding an auction for a product comprising:

means for receiving bids from at least one computer or from multiple computers within a network of computers that include minimum desired volumes and maximum desired volumes and evaluation prices for said product;

means for generating, using computing resources, a finite set of bids that include as an element said bids that were received from said at least one computer or from multiple computers within said network of computers;

means for employing dynamic programming using said computing resources to generate, using said bids that were received from said at least one computer or from multiple computers within said network of computers, a subset of bids wherein a maximum gain is obtained within a range represented by a count of said product available for sale, wherein said means for employing dynamic programming

(i) allocates ~~means for allocating~~ two-dimensional arrays V, representing a maximum gain, and Q, representing a count of a product available, to a memory area by using said dynamic programming using said computer resources;

(ii) initializes ~~means for initializing~~ said two-dimensional arrays V and Q; and

(iii) recursively solves ~~means for recursively solving~~ recursive equations for said two-dimensional arrays V and Q using said computing resources,

wherein

$$V(k,j):=\left\{\begin{array}{ll} V(k+1,j) & \\ V(k,j+1) & \\ V(k,j+1)+e_k & if\ 1k \le Q(k,j+1) < h_k) \\ V(k+1,j+1_k)+e_k 1_k & \end{array}\right\}$$

$$Q(k,j):=\left\{\begin{array}{ll} Q(k,j+1)+1 & (if\ V(k,j)=V(k,j+1)+e_k \\ 1_k & (if\ (k,j)=V(k+1,j+1_k)+e_k 1_k \\ Q(k,j+1) & (if\ V(k,j)=Vk,j+1) \\ 0 & (otherwise) \end{array}\right\}$$

is employed as said recursive equation, where V(k, j) denotes said two-dimensional array V populated with said evaluation prices; where Q (k , j) denotes said two-dimensional array Q populated with said count of said product available for sale; where k represents a bid number and denotes an integer equal to or greater than 1 and equal to or smaller than n; j represents the number of the product and denotes an integer equal to or greater than 0 and equal to or smaller than s; n denotes the number of bids; s denotes the number of products available for the transaction; e_k denotes the evaluation price when x units of products are purchased according to the bid b_k; l_k denotes the minimum volume of the bid b_k; and h_k denotes the maximum volume of the bid b_k, wherein a bid is selected by back tracking of said two-dimensional array V from the element on the smallest row and in the smallest column.

18-24. Canceled

25 (Currently amended). A computer-readable storage medium on which a program for holding an auction for a product is stored, said program enabling computing resources to perform:

a process for receiving bids from at least one computer or from multiple computers within a network of computers that include minimum desired volumes and maximum desired volumes and evaluation prices for said product wherein said evaluation prices for said product are represented as a non-linear function relative to the desired volume of said product;

a process for generating, using computing resources, a finite set of bids that include as an element said bids that were received from said at least one computer or from multiple computers within said network of computers;

a process for employing dynamic programming using said computing resources to generate, using said bid set that were received while using said process for receiving bids, a subset of bids wherein a maximum gain is obtained within a range represented by a count of said product available for sale, wherein said dynamic programming includes

(i) allocating a two-dimensional array V, representing a maximum gain, to a memory area by using said dynamic programming using said computing resources;

(ii) initializing said two-dimensional array V; and

(iii) recursively solving the recursive equation for said two-dimensional array V, wherein

$$V(k, j) := \max\{V(k+1, j), V(k, j+1), \max_{1k\le n\le hk}\{V(k+1, j+x)+e_k(x)\}\}$$

is used as the recursive equation, where V(k, j) denotes said two-dimensional array V populated with said evaluation prices; where k represents the bid number and denotes an integer equal to or greater than 1 and equal to or smaller than n; j represents the number of the product and denotes an integer equal to or greater than 0 and equal to

or smaller than s; n denotes the number of bids; s denotes the number of products available for the transaction; e_k denotes the evaluation price when x units of products are purchased according to the bid b_k; l_k denotes the minimum volume of the bid b_k; and h_k denotes the maximum volume of the bid b_k; and

a process for identifying or accepting a bid from said subset of bids, wherein a bid is selected by back tracking of said two-dimensional array V from the element on the smallest row and in the smallest column.

26-27. Canceled